

APAC

Hazardous Materials Management Procedure

S3[APAC]-110-PR1

1. Purpose and Scope

- a. The purpose of this procedure is to define the requirements for the management of safety, health and environment (SH&E) risk associated with the storage, handling, use and disposal of hazardous substances. .
- b. For the purpose of this procedure, hazardous chemical includes hazardous chemicals, hazardous substances, dangerous goods, hazardous waste and contaminants.
- c. This procedure applies to all AECOM controlled operations in Asia Pacific (APAC) where the use of any Hazardous Chemicals are known to be stored, used, handled, transported or disposed of.
- d. Exemptions apply for consumer products (i.e., hazardous chemicals available for household use and used in a manner which is consistent with household use) for example:
 - i. Hazardous chemicals in batteries when incorporated in plant;
 - ii. Fuel, oils or coolants in a container fitted to a vehicle, vessel, aircraft, mobile plant, appliance or other device, if the fuel, oil or coolant is intended for use in the operation of the device;
 - iii. Fuel in the fuel container of a domestic or portable fuel burning appliance, if the quantity of fuel does not exceed 25 kilograms or 25 litres;
 - iv. Hazardous chemicals in portable firefighting or medical equipment for use in a workplace;
 - v. Liquid paper
 - vi. Printer toner
 - vii. Household cleaning products
 - viii. Household insect sprays and repellents
 - ix. pH calibration solutions for instruments

2. Management of Hazardous Chemicals

2.1 Hazard Identification and Risk Assessment

- a. All projects and offices must identify SH&E risks associated with storing, handling, using, generating, transporting or disposing of Hazardous Chemicals in accordance with the requirements of Hazard Recognition and Risk Management Procedure.
- b. The risk assessment must consider the following:
 - i. The properties of the hazardous chemical including stability and potential for decomposition
 - ii. Potential for chemical or physical reaction between the hazardous chemical and another substance or mixture, including a substance that may be generated by the reaction
 - iii. The nature of the work to be carried out with the hazardous chemical
 - iv. Any structure, plant or system of work that could interact with the hazardous chemical at the workplace.
- c. If safety equipment is required to control an identified risk in relation to storing, using, handling, or disposing of hazardous chemicals at a workplace, that equipment shall be provided, maintained and readily accessible to persons at the workplace.

2.1.1 Register & Manifest

- a. A HAZCHEM and Dangerous Good Register shall be established for all offices and AECOM controlled storage facilities by the local Health & Safety Representative (HSR) or SH&E Manager. A Register shall also be established for sites where chemicals are stored by the PM.
- b. At intervals not exceeding one year, and when a new chemical is introduced to the workplace, the Register shall be reviewed.
- c. The Register and current Safety Data Sheet (SDS) shall be readily available at the workplace, either electronically and / or in hard copy. If the SDS for a hazardous chemical is not supplied, the user shall contact the manufacturer, importer or supplier to obtain the SDS before the chemical is used at the workplace.
- d. A Manifest of hazardous chemicals shall also be maintained if the quantity of a hazardous chemical or group of hazardous chemicals used, handled or stored at the workplace exceeds the manifest quantity prescribed by local legislation.

2.2 Labelling & Communication

- a. All hazardous chemicals must be clearly labelled (in the official language of the location) and display:
 - i. The product identifier / name
 - ii. The name, and the address and business telephone number of the manufacturer or the importer
 - iii. Any hazard pictogram or hazard statement consistent with the correct classification of the material
 - iv. The word hazardous or signal words such as dangerous, poison, warning or caution that indicate the severity of the hazard
 - v. Any other critical information about the hazards, first aid and emergency procedures (e.g. expiry date)
 - vi. Dangerous goods class labels (where applicable)
- b. If the substance is decanted into a secondary container, the secondary container shall be labelled in all instances.
- c. Contaminated samples and hazardous waste (e.g., building materials potentially containing asbestos or soil samples potentially containing hydrocarbons) must be appropriately labelled for handling, transport, or disposal with the following:
 - i. The label shall specify "Hazardous Waste"
 - ii. The source and contents of the container
 - iii. The hazard(s) associated with the waste in the container
 - iv. The name, address and business telephone number of the individual responsible for the material
 - v. In addition to the above the waste disposal shall be as per the local country regulations and with an approved disposal contractor/agency.

3. Storage, Handling, Use, Transport and Disposal

- a. Storage, handling, use, transport and disposal of hazardous chemicals shall be carried out in accordance with the SDS for the specific chemical.

3.1 Storage

- a. All hazardous chemical storage receptacles and bins must be suitable for the purpose they are employed for, kept in good condition and clearly labelled.
- b. Storage areas must clearly show signage in accordance with local Dangerous Goods legislation (e.g. Class Diamonds; HAZCHEM; no smoking and naked flame warning signs).
- c. Minimum control measures for hazardous chemical storage areas shall include:

- i. Chemical compatibility and segregation rules shall be observed
- ii. Sources of ignition, heat and combustion materials shall be removed (where applicable)
- iii. Security and access control systems and hardware must be in place, appropriate to the risk, to manage access to areas where hazardous materials are stored and used
- iv. Provisions for safe drainage and containment shall be identified and implemented
- v. The storage area should be kept well ventilated and clean at all times
- vi. Food, food packaging or personal use products should not be in proximity to the storage area
- vii. Storage temperatures shall be maintained in relation to the hazardous chemical properties
- viii. Compressed gas cylinders (CG) should be:
 - stored in an upright position and secured with a non-abrasive chain or racking / cage system
 - protected from impact damage
 - stored away from other hazardous chemicals by at least 5 m or as per local regulations (whichever is the highest), or by using appropriate fire-rated barriers
- ix. Full and empty CG cylinders should be kept separate. Cylinders that are empty, or deemed to be empty shall be afforded the same precautions during storage as full cylinders.
- x. Incompatible gas cylinders must be segregated by at least 3m or more as per applicable local regulatory requirements (whichever is the highest).

3.2 Handling and Use

- a. All hazardous materials shall be used in strict accordance with the SDS and label instructions.
- b. If the stability of a hazardous chemical used, handled or stored at the workplace is dependent on the maintenance of the proportions of the ingredients of the hazardous chemical, the proportions shall be maintained as stated in the SDS or by the manufacturer.
- c. Minimum control measures for the handling of CG cylinders shall include:
 - i. Always ensure cylinders are positively secured with a fit for purpose strap or chain to mechanical lifting/handling devices prior to movement
 - ii. Remove any connected equipment (e.g. regulator) and refit any supplied valve protection cap and/or valve outlet gas tight cap/plug prior to moving cylinders
 - iii. Use mechanical aids (e.g. trolleys) in preference to direct manual handling of cylinders
 - iv. Familiarise yourself with and observe appropriate safe lifting techniques/postures prior to manually handling heavy or large gas cylinders.

3.3 Transport/Shipping

- a. AECOM employees shall not transport hazardous chemicals in quantities that require licensing or compliance with Dangerous Goods Transport codes / legislation. This shall only be done by an approved contractor engaged by AECOM who can demonstrate compliance with the relevant legislation unless an AECOM staff member has received training by the required regulatory authority.
- b. All hazardous waste shall be accompanied by a hazardous waste manifest (unless exempt by legislation) and shall be marked, labelled, and placard as stipulated by local legislation.
- c. Specific control measures for transporting CG cylinders in vehicles should include:
 - i. Cylinders containing oxidising, flammable or toxic gasses shall not be transported inside the passenger compartment of a motor vehicle

- ii. Non-flammable or non-toxic gases should also not be transported in a passenger vehicle and alternate arrangements should be made as primary control. If no alternative is available the following additional controls must be implemented:
 - At least one vehicle window is open
 - An effective cargo barrier is installed (e.g. boot of a sedan, specifically fitted metal cargo barriers in SUV's etc.) that separates vehicle occupants from CG Cylinders
 - iii. Ensure CG Cylinders are suitably secured to prevent cylinder movement during transport
 - iv. Ensure cylinder valves are closed and protective caps are installed (hand tight) when not in use or before moving
 - v. Ensure CG cylinders are removed from the vehicle as soon as possible
- d. Specific control measures for transporting compressed CG cylinders by air:
- i. CG Cylinders (including small calibration gas cylinders) are considered Dangerous Goods and cannot be carried in personal baggage. CG cylinders shall instead be couriered to site.

3.4 Disposal & Waste Management

- a. Only wastes generated via AECOM project activities should be managed through AECOM systems.
- b. Any used containers and materials shall be disposed of appropriately, in accordance with the SDS.
- c. All wastes shall be evaluated to determine if such waste is a hazardous waste. This evaluation may include, but is not limited to analytical test results, process knowledge, or review of SDS.
- d. Hazardous waste must be collected, stored, preserved, segregated, treated, recycled and disposed of separately from other waste and must not enter the general waste stream.
- e. A record of disposal of hazardous waste must be obtained from the party disposing of the waste. The record shall be retained in the project folder (if project related) or forwarded to the Regional Facilities Manager (if office related).

4. Emergency Preparedness & Response

- a. A hazardous chemical specific Emergency Response Plan (ERP) shall be prepared in accordance with the requirements of Emergency Response Procedure and Safety Data Sheet (SDS):
 - i. if the quantity of hazardous chemicals used, handled or stored at a workplace exceeds the legislated manifest quantity for that hazardous chemical
 - ii. hazardous chemicals are being transported
 - iii. where required based on the outcome of a risk assessment

4.1 Emergency Equipment

- b. The type of emergency equipment required to respond to an emergency involving hazardous chemicals will vary depending on the type and quantities of hazardous chemicals at the workplace. Equipment must be located so it is readily accessible for all workers if an emergency arises.
- c. The workplace must be provided with fire protection and firefighting equipment that is designed and built for the types of hazardous chemicals at the workplace in the quantities in which they are used, handled, generated or stored at the workplace, and the conditions under which they are used, handled, generated or stored, having regard to:
 - i. The fire load of the hazardous chemicals;
 - ii. The fire load from other sources; and
 - iii. The compatibility of the hazardous chemicals with other substances and mixtures at the workplace

- d. The fire protection and firefighting equipment must be properly installed, tested and maintained.
- e. Where there is a risk from a spill or leak of a hazardous chemical in a solid or liquid form, provision must be made in each part of the workplace where the hazardous chemical is used, handled, generated or stored for a spill containment system that contains within the workplace any part of the hazardous chemical that spills or leaks, and any resulting effluent. This includes portable spill kits for potential releases on project sites.
- f. The spill containment system established must provide for the clean-up and disposal of a hazardous chemical that spills or leaks, and any resulting effluent.

5. Training

- a. Staff who handle, move or are responsible for hazardous chemicals should have appropriate training commensurate with the specific chemicals and in line with all SHE risk assessments, material safety data sheets and method statements.
- b. The training will include how to assess and control their exposure to hazardous chemicals. Information may be provided in the following forms:
 - i. Inductions
 - ii. On the job training and safe work procedures
 - iii. Specific training packages on chemicals
 - iv. Training on controls such as PPE
- c. AECOM employees involved in hazardous waste operations should have completed HAZPOWER training in line with the requirements of SH&E Training Requirements Procedure.

6. Monitoring & Review

6.1 Exposure Monitoring and Health Surveillance

- a. Exposure monitoring may be necessary to assess hazardous chemical exposure risk and guide specific actions to be taken when exposures exceed a pre-determined level. Any monitoring requirements shall be documented in the project SHEMP / SWMS and conducted in accordance with Exposure Monitoring and Management Procedure
- b. Exposure Standard information shall not be obtained from the chemical SDS and should only be obtained from the appropriate body/reference standard for setting exposure standards, such as the local safety regulator
- c. Personnel who carry out work storing, using, handling or generating a hazardous chemical may be identified for participation in a health surveillance programme, which shall be conducted in accordance with Employee Medical Surveillance Procedure

6.2 Chemical Audit and Inspection

- a. In accordance with SH&E Audits and Inspection Procedure audit and inspection of hazardous chemical storage locations shall be undertaken by a competent person at a set frequency. In addition to auditing competencies the individual(s) performing the audit should understand applicable local legislation in relation to chemical safety, storage and handling.
- b. The results of chemical audit or inspection shall be recorded in IndustrySafe or other equivalent system.
- c. For the inspection of compressed gas cylinders prior to use, handling and/or storage the Compressed Gas Cylinder Inspection Form may be used to document the compliance check.

6.3 Review

- e. Hazardous chemical risk assessment documentation shall be reviewed when a new hazardous chemical is introduced into the workplace and at intervals not exceeding one year, or more frequently based on the outcomes of exposure monitoring, health surveillance, audit or inspection.

- a. Review shall be undertaken if exposure monitoring or health surveillance results indicate that a worker may have been exposed to a hazardous chemical in excess of the relevant Action Level or Exposure Standard (refer to Exposure Monitoring and Management Procedure)

7. Terms and Definitions

- a. CG Compressed gas cylinders
- b. Chemical Manifest A written summary of specific types of hazardous chemicals and dangerous goods that are used handled or stored at a workplace. A manifest is only required where the quantities of those hazardous chemicals exceed prescribed threshold amounts. It contains more detailed information than a register of hazardous chemicals as its primary purpose is to provide the emergency services organisations with information on the quantity, classification and location of hazardous chemicals at the workplace. It also contains information such as site plans and emergency contact details.
- c. Chemical Register Includes a list of hazardous chemicals used, handled or stored on site, and the current SDS for each hazardous chemical listed.
- d. Classification A process used to determine if a chemical can cause harm to human health and safety. It involves the identification and evaluation of the physical properties of a chemical, along with its health effects. It is the classification of a hazardous chemical that determines what information is communicated on the label and the Safety Data Sheet (SDS). The classification is based on the SDS.
- e. Consumer Product A product that is packed or repacked primarily for use by a household consumer or for use in an office; in the way and quantity in which it is intended to be used by a household consumer or for use in an office.
- f. Contaminant Any substance that may be harmful to health or safety.
- g. Dangerous Goods Substances, mixtures or articles that, because of their physical, chemical (physicochemical) or acute toxicity properties, present an immediate hazard to people, property or the environment. Term is used in relation to transporting of hazardous chemicals and relevant jurisdictional codes/laws relating dangerous good transportation also needs to be considered. Types of substances classified as dangerous goods include explosives, compressed gases, petroleum, radioactive material, flammable liquids and gases, corrosives, chemically reactive or acutely (highly) toxic substances.
- h. Globally Harmonised System (GHS) A system used to classify and communicate chemical hazards using internationally consistent terms and information on chemical labels and Safety Data Sheets (SDS). The GHS was created by the United Nations to create a single worldwide methodology for safely managing chemicals. The GHS became mandatory on 1 January 2017.
- i. Hazardous Chemical A substance, mixture or article that satisfies the criteria for a hazard class in the Global Harmonisation System (GHS).
- j. Safety Data Sheet (SDS) The SDS (formerly called a Material Safety Data Sheet/MSDS) is governed by the Global Harmonisation System and provides comprehensive information for use in workplace chemical management. Employers and contractors must use the current SDS that has been prepared by the manufacturer of the product being used as a source of information about hazards and to obtain advice on applicable safety precautions. The SDS is product related and, usually, is not able to provide information that is specific for any given workplace where the product may be used.

8. References

- a. International Air Transport Association (IATA) - Dangerous Goods Regulations (DGR) Manual
- b. SHE Training Requirements Procedure S3[APAC]-003-PR1

- c. Employee Medical Surveillance Procedure S3[APAC]-128-PR1
- d. Emergency Preparedness and Response Procedure S3[APAC]-010-PR1
- e. Emergency Response Procedure S3[APAC]-010-PR1
- f. Exposure Monitoring and Management Procedure S3[APAC]-127-PR1
- g. Hazard Recognition and Risk Management Procedure S3[APAC]-209-PR1
- h. SH&E Audits and Inspection Procedure S3[APAC]-216-PR1

9. Records

- a. Project Specific Risk Assessments (SHEMP / SWMS)
- b. HAZCHEM and Dangerous Good Register S3[APAC]-110-FM1
- c. Compressed Gas Cylinder Inspection Form S3[APAC]-110-FM2
- d. Waste Transfer / Disposal Documentation

10. Change Log

List the change history pertaining to this document including if it was identified differently throughout its life-cycle:

Rev #	Change Date	Description of Change	Location of Change
0	May 8, 2018	Initial Release	All